

OUR BOOK SHELF

On the Healthy Manufacture of Bread. A Memoir on the System of Dr. Dauglish. By Benjamin Ward Richardson, M.D., F.R.S. (London: Baillière, Tyn-dall, and Cox, 1884.)

THIS pamphlet is another of Dr. Richardson's labours in the cause of public health. It deals mainly, as the title implies, with healthy bread, and especially with the system of the late Dr. Dauglish of Malvern for baking what is now generally known as aerated bread. The advantages of the aerated process are stated by the author to be that the destructive influence of fermentation is prevented. There is no chemical decomposition of the flour whatever, and therefore no loss of material, while the rising of the dough is just as effectively carried out. The aerated bread contains, therefore, all the gluten and all the albuminous food of the wheat, out of which the living tissues are constructed, as well as the food which ministers to the animal warmth and vital activity. Moreover, much labour to the baker is spared, and the kneading by hand is wholly dispensed with—a matter of some consideration to delicate or fastidious persons. The gradual steps by which the process has been worked out, from the incubation of the idea in the brain of Dr. Dauglish to the modern aerated process of baking are fully traced by Dr. Richardson, who describes also the different effects of fermentation and aëration on the different qualities of flour, the economic and sanitary advantages of the new system to the workmen (by no means the least important part of the subject, as those who recollect Mr. Lakeman's report on the London bakeries, and who read Chapter IX. of this little work, will acknowledge), and the public advantages of the aerated bread in relation to health. An appendix contains a brief memoir of Dr. Dauglish.

Proceedings of the Edinburgh Mathematical Society.
Second Session, 1883-84.

OUR readers have seen from time to time in our "Society" Notices the titles of papers read before this young but from the outset vigorous body, and must have often wished for a more intimate acquaintance with their contents (as the odoriferous steam issuing from the cookshop tempts the hungry "Arab" to enter and feed). We are glad to find, from the volume before us, that the Society is in a position to print its *Proceedings*, for we now know how interesting the papers are. They are not, like some other papers nearer home, caviare to the general, but they deal with matters which come home to every mathematical teacher. Mr. Mackay writes on the circles associated with the triangle, viewed from their centres of similitude; Mr. Muir, on the condensation of a special continuant; Dr. Macfarlane, on voting; Prof. Chrystal, on an application of matrices to spherical geometry, on a problem in partition of numbers, &c. Mr. Allardice furnishes some useful notes on spherical geometry and trigonometry; Mr. Browning, some illustrations of harmonic section; Mr. Barclay, notes on the teaching of elementary geometry (abstract only), and Mr. Traill, proofs of the theorems as far as "Euclid" i. 32, from first principles. Other papers are: a good concise account of Pascal's "Essais pour les Coniques" by Mr. Macdonald; the hypothesis of Le Bel and Van't Hoff, by Prof. Crum Brown; on the representation of the physical properties of substances by means of surfaces, by Mr. Peddie; and a joint account of the problem "La Tour d'Hanoi" (one of displacements), by Messrs. Allardice and Fraser. With these *Proceedings* are bound up Prof. Tait's introductory address on Listing's "Topologie," which, our readers will remember, has been published in the *Philosophical Magazine* (January 1884, pp. 30-46, with plates), and Mr. Muir's Presidential Address entitled "The Promotion of Research; with Special

Reference to the Present State of the Scottish Universities and Secondary Schools" (delivered February 8, 1884).

Elementary Text-Book of Trigonometry. By R. H. Pinkerton, B.A. (London: Blackie and Son, 1884.)

THIS elementary text-book of 176 pages contains all the essentials for obtaining a knowledge of trigonometry proper. It might be used either by those who desire merely a thorough grounding in the elements, or, as a first book, by those who intend to take a full analytical course. The arrangement is good, the text well written, and the examples, worked and unworked, are numerous and judiciously chosen. The introductory chapter on the measurement of angles is particularly commendable. We should prefer, however, not to write " $\pi/3$ radians" but " $\pi/3$ radian," reading it "*pi*-thirds of a radian." It may be suggested also to a writer who has the courage to introduce reforms, whether the time has not come for dispensing with the so-called *tablogsines*, *tablogcosines*, &c., and using only logsines, logcosines, &c. *Tabular* log functions are, according to our experience, well-meant aids which only hinder.

LETTERS TO THE EDITOR

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[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

Iridescent Clouds

ON Thursday evening, December 11, about fifteen minutes after sunset, in the south-west direction as seen from the Royal Observatory here, were two rather large clouds about 10° or 12° high, and below them several much smaller ones, all of them of the most brilliantly iridescent colours and nothing but bright colour, of a kind I do not remember to have seen before, though they were not improbably like some described by several of NATURE's correspondents last year.

The principal cloud, some 5° or 6° long and 2° or 3° across, exhibited a diagonal band of glowing green, passing through blue into exquisite violet on either side, while it was fringed nearly all round by dull red.

The second largest cloud, a little below and rather to the eastward of the first, exhibited all the same colours in similar diagonal bands, but unconformably with the places of the bands of the first produced down to it; though both may have had their bands at right angles to a ray from the sun long since set, but directed on their centres. The sky behind them and all around was singularly dark and sombre, so that these iridescent clouds, in the brightness and richness of their colouring, reminded one more of mother-of-pearl inlaid in a black tea-tray than any ordinary sunset sky.

The smaller clouds of the same kind lower down gradually lost the central green band and passed into yellow and orange, but were still phenomenally bright specks of luminous material on the dark general background. All this towards the south-west; while west and north-west the sky was nearly clear, and exhibited, in a sunset-illuminated sky "proper," a fairly fine but quite ordinary set of thin cirro-stratus rolls of cloud, warmly coloured on one side and cold-gray shaded on the other, like any corporeal body in the same exposure.

Lower down still on the horizon was a heavy cumulo-stratus cloud, which the west wind presently brought up to eclipse the green and blue iridescent clouds, proving that they were higher than it, though not so high as the dark cirrus haze to the south-west that had served so well to set forth their brilliant and unusual colouring.

Edinburgh, December 13

C. PIAZZI-SMYTH

A STRIKING phenomena, apparently a new phase of the cloud-glows, was widely witnessed here on the 13th, and I myself noticed it, though on a much less scale, and in the north-

east, on the 11th. About 3.30 p.m. the upper edge of a dark, very lofty haze cloud, stretching almost straight from alt. 15° in the south-south-west, to about alt. 20° in the north-west, was fringed with prismatic colours, in parts thrice repeated, separating the dark haze cloud from a bright white haze, like that often seen of late near the sun, which itself was nearly setting. The luminous haze was widest, about 5°, above the sun, and was also, but far more faintly fringed, with a hazy blue sky above. It lasted until 4.20, but at 4.10 the dull cloud was a deep violet, and the bright haze a steel blue. They both seemed to disappear in the dusk, but the bright glow reappeared about 4.40 p.m.

On both occasions the phenomenon lasted long after sunset, and the cloud was quite distinct from the feathery cirri on which, if near the sun, one so often sees prismatic effects. On the 11th the two small oblong clouds affected had the colours in regular bands, in one round a dark, in the other round a bright centre, reminding one of Newton's rings. J. EDMUND CLARK

York, December 15

The "New" Volcanic Island off Iceland

KNOWING the interest which, from their association with the later years of the Gare-fowl's existence, I have long taken in the islets lying off the south-west point of Iceland, Prof. Lütken has most kindly sent me a copy of the Copenhagen newspaper *Dagbladet* for the 7th of this month, containing an article by Capt. C. Normann of the Danish Royal Navy, in command of the ship *Fylla*, during her recent scientific voyage to Greenland, a distinguished officer and an eminent authority in Arctic matters. The article is long—too long for my powers of translation—but, with the friendly help of a Danish young gentleman of this University, I have mastered it, and find it exceedingly entertaining. It treats of the island which, as already announced in these columns (vol. xxxi. p. 37) and elsewhere, is said to have been lately thrust up, as other islands have before been known to be upthrust (at least temporarily) in that volcanic neighbourhood. According to the statement of Mr. Consul Paterson (*loc. cit.*) it is said to have been first observed by the lighthouse-keeper at Reykjanes on July 29; and it would seem that news of its apparition speedily reached Reykjavik; but unfortunately, says Capt. Normann, there was then no ship there available to make search for it. Rather less than a month later, however, the *Dupleix* and *Romanche*, of the French navy, arrived at that port, and the commander of the former, animated with the laudable desire to determine the position of the new island, and if possible to effect a landing upon it, resolved to do so in the course of his homeward voyage, and, with that intent, set out after a short delay. To the surprise of all at Reykjavik, he, as he subsequently informed the French Consul there, could find no trace of the object of his search on August 24. On the departure of the *Dupleix*, however, the commander of the *Romanche* dispatched two of his officers, equipped with proper instruments, by land to Reykjanes, thence to take the bearings of the new island. On August 26 they undoubtedly saw an island corresponding in position with what they expected to see, and reported accordingly to Reykjavik, where Capt. Normann's *Fylla* had arrived on the 25th, on her homeward voyage. The Danish commander, equally enthusiastic in the cause of scientific discovery, accordingly left Reykjavik early on the morning of the 27th, and soon after mid-day his ship was off Reykjanes, whence he pursued a course along the northern side of the bank from which the Fowlskerries emerge, seeing nothing of the new island, it is true, but that time the weather was thick. However, he passed cautiously (as well became a navigator in water liable to volcanic upthrusts) along the whole range, and even beyond the furthest of the emerged skerries—the Geirfugladráng or Grenadeerhuen, when it began to grow dark, and also to blow. Next morning he turned back, running still along the northern side of the bank. It was clear and beautiful weather, and the rock just named, as well as Eldey or Melsækken, the innermost of the range, stood out in bright sunshine. Breakers marked the position of the old Geirfuglaskær, which sank beneath the waves in 1830, and the neighbouring coast of Iceland, as well as the inland fells, was plainly visible, but nothing in the shape of a "new" island was to be seen. So he came back to about midway between the Meal-sack and Reykjanes—the lead giving a depth of eighty fathoms of water. Thence, thinking that after all there might be some mistake in the reported position of the island, he put his ship's head about,

and ran along the southern side of the bank. But again was he disappointed, for no new island met the anxious gaze of all on board.

It remains to be said that a day or two later the *Romanche* came to the same spot, but alas, nothing new was to be found—not even a pumice-stone by which, as Capt. Normann remarks, all decent volcanic islands are expected to indicate their position, even when submerged. Still, the form of the "new" island went on gratifying the vision of the lighthouse-keeper at Reykjanes; and, as Mr. Paterson has told us (*loc. cit.*) it was seen by him through a telescope on September 9. I do not for a moment doubt that both he and previously the officers of the *Romanche* saw what was pointed out to them as the "new" island; but, from all that has been said before, and from my own knowledge of the locality, gained during a two months' stay at Kykjuvogr and the neighbourhood in 1858, neither do I doubt that Capt. Normann is perfectly right in asserting that the supposed "new" island is a very old friend of mine—the Geirfugladráng or Grenadeerhuen before mentioned—the outermost of the emerged Fowlskerries, and our best thanks should be given to that gallant and scientific officer for dispelling the mystery. ALFRED NEWTON

December 14

Overpressure in Schools

I HAVE carefully read Dr. Gladstone's article on over-pressure. Over-pressure is due more to the action of inspectors and teachers than to the requirements of the Code; e.g. a teacher in my district has a first class in an infant school, the children being all about six years of age. Owing to the unusual brightness of the children and their regular attendance, the teacher has had no difficulty in training her class in the three R's for first standard work, which, under ordinary circumstances, they could not do until they were a year older and in a higher class. What is the result? An inspector visits that school, finds the children can do much more than is required by the Code, and, without reflecting *how* this has been accomplished, he gives a good report for that class. The following week he visits another school in the same neighbourhood and examines a similar class; these children, he finds, are not so far advanced as those examined the previous week, and therefore he makes a less favourable report, thinking that the teaching-powers are not so good, although the children have really been quite as well taught, and are fully up to the requirements of the Code. When the report comes to the latter school, the teacher cannot understand how it is that the class has not gained the report it deserved, until by and by she hears indirectly what has been accomplished at the school previously examined. Then she says, "If they can do it at that school, we can do it here." Hence *over-pressure*. If inspectors did not examine beyond the Code, teachers would not train children for a higher standard than the Code requires.

Dr. Gladstone says, "Teachers used to be paid partly from the Government grant, and thus had a pecuniary incentive to press forward the feeble so as to insure a pass." That is quite true, but teachers will be found in the future to be quite as anxious as they were in the past as to the results of the examinations. They know quite well that now the salaries are fixed, and do not depend on results, it would be said directly that they did not take the same interest in their work as formerly if perchance the schools passed a less favourable examination, and on this point they are keenly sensitive.

Dr. Gladstone advocates "varied and appropriate occupations in infant schools." It is no doubt very monotonous for little children to be kept closely to the study of the three R's, but there are very few who really like the Kinder Garten as taught in our infant schools, unless it be the Kinder Garten games: it is *not* play, but hard work for such little ones to do. It is impossible for the work to be taught successfully when a teacher has too large a class under her control; in Belgium an assistant mistress has a class of fifty children with a pupil teacher to help her, and then no doubt Kinder Garten can really be carried out with beneficial results to the children, but in the London Board schools, where an assistant teacher has seventy or eighty or even more in her class *without help*, how is it possible to obtain good results? If Kinder Garten is to be taught with success there ought to be a Kinder Garten mistress appointed by the Board to teach it to the children, and I think there are very few teachers who would not agree in this. Of course it would entail extra expense, but it would be an expense more beneficial to the